

Amendments to the Specification

Please replace the paragraphs beginning at page 9, line 1, and ending on line 24, under “Detailed Description” with the following rewritten paragraphs:

With reference to Figure 1, a software architecture of a computer graphics image rendering system 100 provides image rendering of a modeled object with a bi-scale radiance transfer image rendering technique described herein. In general, the software architecture includes a macro-scale radiance transfer precomputation 120, a meso-scale radiance transfer texture pre-computation 121, an image rendering engine 140, and a graphics display driver 180. In the bi-scale radiance transfer rendering technique described more fully below, the macro-scale and meso-scale precomputations 120, 121 perform a pre-processing stage of the technique, which precomputes radiance self-transfer (PRT) data 130 and radiance transfer texture (RTT) data 131 from a geometric object model 110. The geometric model 110 can be a triangulated mesh, wavelet composition, or any other representation of the geometry of the object being modeled, as well as a height field or other model of the meso-scale structure of the object. The image rendering engine 140 then uses the PRT data 130 and RTT ~~131~~ data 131 to render images of the modeled object for a dynamically variable lighting environment 150 and viewing direction 160, which can be selectively varied or set with user controls 170. The graphics display driver 180 outputs the images to an image output device (e.g., to a monitor, projector, printer or like).

In some embodiments of the graphics image rendering system, the bi-scale radiance transfer precomputation of simulator 120 and image rendering by the engine 140 can be implemented on a single computer, such as that described in the section entitled, Computing Environment, below. More generally, the simulator 120 can be run on a separate computer, and the resulting data then transferred to the computer on which the rendering engine 140 runs to produce the graphics images.

Please delete the word “different” in the following sentence beginning at page 12, line 25, and ending on line 26:

These height field images can be created in a variety of ways, with various different editing tools.

Please replace the paragraph beginning at page 14, line 1, and ending on line 4, under “Parameterizing the Surface” with the following rewritten paragraph:

With reference now to Figure 6, the step 520 (Figure 5) of parameterizing the surface in the RTT ID Map generation process 500 is done in three steps will now be more fully explained. The first step 610 partitions the mesh into charts, the second 620 parameterizes each chart, and the third 630 packs charts together into a single atlas.

Please replace the paragraph beginning at page 16, line 9, and ending on line 13, with the following rewritten paragraph:

B's samples are organized as a 2D texture of 8×8 view blocks. Contiguous view samples allows allow texture mapping hardware to perform smoother (bilinear) interpolation across views. Interpolation over spatial samples is prohibited, but the RTT is spatially smooth enough to produce good results using nearest-neighbor sampling. Image supersampling improves results.